



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,721	10/31/2003	Philip J. Pietraski	I-2-0433.1US	1573
24374 7590 11/26/2008 VOLPE AND KOENIG, P.C. DEPT. ICC UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103				
EXAMINER				
LAM, DUNG LE				
ART UNIT		PAPER NUMBER		
2617				
MAIL DATE		DELIVERY MODE		
11/26/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/698,721

Applicant(s)

PIETRASKI, PHILIP J.

Examiner

DUNG LAM

Art Unit

2617

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/24/08.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 12-16 and 32-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-5, 12-16 and 32-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim(s) **1, 12 and 32** are rejected under 35 U.S.C. 103(a) being unpatentable over **Qui** (US Pub. No. 20020097686) in view of **Gaal** (US 2004/0203475)
2. Referring to claim **1**, **Qui** teaches a method for providing feedback regarding the quality of a communication channel which is transmitted between a transmitter and a receiver ([0014]); the method comprising:
 - receiving a downlink data communication ([0016]);
 - performing at least one current quality measurement on said downlink data communication to determine the current quality of said downlink data channel (obtain CSI, [0016]);
 - deriving, based on said performing step, a predictive channel quality indication (CQI) estimating the future quality of said downlink data channel on a per multiple slots basis ([19, 25,22]) and

Art Unit: 2617

- transmitting said predictive CQI wherein said predictive CQI includes at least one of a recommended transport block size, modulation format, or number of codes ([20-21, 25, 26, 45]).

Qui teaches obtaining measurements on a per multiple time slots basis. However he does not on a time slot basis. In an analogous art, **Gaal** teaches obtaining channel quality on a per time slot basis (C/I ratio estimate can be performed in every time slot, [25, 29, 33, 47]). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to modify **Qui**'s teaching of deriving a predictive CQI and **Gaal**'s measuring channel of the quality on a time slot basis to increase the response time to signal fading and faster adjustment can be made to improve signal quality.

3. Referring to **claim 12**, **Qui** teaches a method for providing channel quality measurements on a downlink communication ([0014]); the method comprising:

- monitoring said downlink communication channel at said receiver ([16]);
- performing at least one current measurement on said downlink communication channel to determine the current quality of said downlink data channel ([0016]);
- deriving, based on said performing step, a predictive channel quality indication (CQI) estimating the future quality of said downlink data channel ([0019, 25]); and
- transmitting said predictive CQI from said receiver to said transmitter wherein said predictive CQI includes at least one of a recommended transport block size, modulation format, or number of codes ([20-21, 25, 26, 45]), a per multiple slots basis ([19, 25,22]) and

Qui teaches obtaining measurements on a per multiple time slots basis. However he does not on **a** time slot basis. In an analogous art, **Gaal** teaches obtaining channel quality on a per time slot basis (C/I ratio estimate can be performed in every time slot, [25, 29, 33, 47]). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to modify Qui's teaching of deriving a predictive CQI and **Gaal's** measuring channel of the quality on a time slot basis to increase the response time to signal fading and faster adjustment can be made to improve signal quality.

4. Referring to **claim 32**, **Qui** teaches a method for providing feedback regarding the quality of a communication channel which is transmitted between a transmitter and a receiver ([14]);
- the method comprising: receiving a downlink data communication ([0016]); receiving a said pilot channel communication ([0016]);
 - performing at least one current quality measurement on said downlink data communication and said pilot channel communication to determine the current quality of said downlink data channel ([0016]);
 - deriving, based on said performing step, a predictive channel quality indication (CQI) estimates the future quality of said downlink data channel ([19, 25]) a per multiple slots basis ([19, 25,22]) and
 - transmitting said predictive CQI from said receiver to said transmitter wherein said predictive CQI includes at least one of a recommended transport block size, modulation format, or number of codes ([20-21, 25, 26, 45]).

Qui teaches obtaining measurements on a per multiple time slots basis. However he does not on **a** time slot basis. In an analogous art, **Gaal** teaches obtaining channel quality on a per time slot basis (C/I ratio estimate can be performed in every time slot, [25, 29, 33, 47]). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to modify **Qui's** teaching of deriving a predictive CQI and **Gaal's** measuring channel of the quality on a time slot basis to increase the response time to signal fading and faster adjustment can be made to improve signal quality.

5. Claim(s) **1, 12 and 32** are further rejected under 35 U.S.C. 103(a) being unpatentable over **Balachandran** (EP0899906) in view of **Raitola** (US 7,336,629)

6. Referring to claim **1**, **Balachandran** teaches a method for providing feedback regarding the quality of a communication channel which is transmitted between a transmitter and a receiver ([0014]); the method comprising:

- receiving a downlink data communication ([0040]);
- performing at least one current quality measurement on said downlink data communication to determine the current quality of said downlink data channel ([0016, 40]);
- deriving, based on said performing step, a predictive channel quality indication (CQI) estimating the future quality of said downlink data channel ([30]) and
- transmitting said predictive CQI wherein said predictive CQI includes at least one of a recommended transport block size ([30, 40]), modulation format, or number of codes.

Balachandran teaches making measurements on a per multiple time slots basis but not on a time slot basis. In an analogous art, **Raitola** teaches making channel measurements on a per time slot basis (C3 L37-50). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to modify Qui's teaching of deriving a predictive CQI on a time slot basis as taught by Raitola to increase the response time to signal fading and faster adjustment can be made to improve signal quality (C2 L10-25).

- Regarding claims **12 and 32**, they are claims that have the same limitations as claims 1, thus are rejected for the same reasons.

7. Claims **2-3, 13-14 and 33-34** are rejected under 35 USC 103(a) as being unpatentable **Qui and Gaal in view of Bergel** (U.S. Publication No. 2004/0142698).

8. Referring to claims **2, 13 and 33**, **Qui** does not explicitly teach including storing said at least one current quality measurement (0026 and Figure 4B). In an analogous art, **Bergel** teaches the step of storing at least one current quality measurement (S120, [0048, 0049] and Figure 4B). Therefore, it would have been obvious for one of ordinary skill in the art skill in the art at the time of the invention was made to combine the admitted prior art's teaching of deriving a predictive CQI with Bergel's teaching of storing at least one current quality measurement to compare the past and present values to provide a more accurate estimate value.

9. Referring to claims **3, 14 and 34**, admitted prior art of applicant further teaches the method of claims 1/12/32 respectively but does not explicitly teach the step of

retrieving a stored measurement in deriving the predictive CQI. In an analogous art, **Bergel** said deriving step further includes retrieving at least one stored quality measurement and utilizing said at least one stored quality measurement and said at least one current quality measurement to derive said predictive CQI (S120, [0048, 0049] and Figure 4B). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention was made to combine the admitted prior art's teaching of deriving a predictive CQI with Bergel's teaching of deriving step predicts the future quality of the downlink communication channel to provide an improved compensation technique for transmission over a channel (0010).

10. Claims **4, 15 and 35** are rejected under 35 USC 103(a) as being unpatentable over **Qui, Gaal and Bergel** and further in view of Koorapaty et al. (U.S. Patent Publication No. 2003/0129992, hereinafter **Koorapaty**).

11. Referring to claims **4, 15 and 35**, **Qui, Gaal and Bergel** teach the limitations of claims 4,15 and 35, but do not teach storing predicted values. **Koorapaty** et al. teaches storing predicted values [0010]. Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Koorapaty of storing predicted values to compare the predicted values with the measured values ([0012]).

12. Claims **5,16 and 36** are rejected under 35 USC 103(a) as being unpatentable over **Qui** in view of Bruckert et al. (U.S. Patent No. 5,305,468, hereinafter **Bruckert**)

13. Referring to claims 5, 16 and 36, **Qui and Gaal** teach the limitations of claims 1, 12 and 32, but do not teach wherein said deriving step utilizes a linear predictive

Art Unit: 2617

algorithm to derive the predicted value. In an analogous art, **Bruckert et al.** teaches wherein said deriving step utilizes a linear predictive algorithm to derive the predicted value (Column 4, Lines 42-45). Therefore, it would have been obvious for one of ordinary skill in the art at the time to combine the teaching of **Qui and Gaal** with the teaching of **Bruckert et al.** wherein said deriving step utilizes a linear predictive algorithm to derive the predicted value to provide a more accurate power control command (Column 1, Lines 47-49).

Response to Arguments

Applicant's arguments with respect to claims 1-5, 12-16 and 32-3 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Harper can be reached on (571) 272-7605. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2617

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/VINCENT P. HARPER/
Supervisory Patent Examiner, Art Unit 2617

/Dung Lam/
Examiner, Art Unit 2617